UNIVERSAL DOCUMENTATION SYSTEM

INTERNATIONAL SPACE STATION ORBITAL VOL-II

PRD/PSP/OR/OD

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 1031 - INDEX

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
===

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2000 - TEST REQUIREMENTS/SUPPORT PLANS

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
[PRD] DATABASE RECORD: 554951   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/04/03
                                            INITIAL DATE: 04/26/00
ITEM NUMBER: H1G   DATE LAST CHANGED: 06/17/04
SECTION: 2000   TIME LAST CHANGED: 08:26:00

REQUESTER: MSFC
TEST CODE: ISSPAL   POICALL

1. DESCRIPTION: TRACKING AND DATA RELAY SATELLITE SYSTEM

   The Tracking and Data Relay Satellite System (TDRSS) shall support
   International Space Station (ISS) Payload Utilization with S-Band and
   Ku-Band communications services.

   The ISS to Ground through TDRSS Interface Control Document (ICD), SSP
   42018, identifies detailed technical interface and link performance
   requirements and specifications.

   Coverage during ZOE transit via the Guam Remote Ground Terminal (GRGT)
   is required for all ISS S-Band services. ISS Ku-Band services are not
   required from GRGT during ZOE.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 03/04/03

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2200 - TELEMETRY DATA

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
[PRD] DATABASE RECORD: 545767   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 02/20/03
                                               INITIAL DATE: 04/26/00
ITEM NUMBER: H1G   DATE LAST CHANGED: 06/21/04
SECTION: 2200   TIME LAST CHANGED: 08:38:52

REQUESTER: MSFC
TEST CODE: ISSPAL   POICALL

1. DESCRIPTION: KU-BAND RETURN SERVICE FROM WSC TO THE HOSC

   The Ku-Band Single Access Return (KSAR) link operates at a data rate of
   50 Mbps. In the future, the KSAR link will be upgraded to 150 Mbps.
   The requirements for Ku-band return data to the HOSC are as follows:

   a. NISN shall provide a fiber terrestrial communication network for the
      distribution of ISS Ku-Band downlink data. This network shall
      support variable data rates from 25 Mbps to 150 Mbps.
   b. The input to the network shall be IP packets, and the output to the
      MSFC is required to be in the same format as that provided to the
      network.
   c. NISN shall provide a 56 Kbps out-of-band frame relay cloud for
      network management and status reporting.
   d. The total service availability of the network shall not be less than
      0.9995 percent.
   e. The maximum downtime shall not exceed 2 hours for any single outage.
   f. A NISN Mission Critical Service is required.
   g. The maximum acceptable packet loss is .001 percent.
   h. The one way data transport delay shall not exceed 100 ms.
   i. A Mission Critical Systems/MSN security level interface is required.
   j. Reference MSFC-PLAN-3340, IDEA Development Plan, for more detailed
       requirements.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 06/21/04

[PRD] DATABASE RECORD: 551180   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 02/20/03
                                               INITIAL DATE: 04/26/00
ITEM NUMBER: H2G   DATE LAST CHANGED: 06/17/04
SECTION: 2200   TIME LAST CHANGED: 10:37:02

REQUESTER: MSFC
TEST CODE: ISSPAL   POICALL

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2200 - TELEMETRY DATA

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
===
                                CONTINUED
[PRD] DATABASE RECORD: 551180
ITEM NUMBER: H2G

1. DESCRIPTION: ACS S-BAND RETURN DATA FROM WSC TO THE HOSC

   The ACS SSAR data shall be transported from the WSC to the MSFC HOSC.
   During ZOE transit, the Guam Remote Ground Terminal(GRGT) shall provide
   ISS SSAR data to the HOSC via WSC. Requirements for S-Band return data
   to the HOSC are as follows:

     a. A 192/12 Kbps synchronous, serial bitstream data and clock service
        shall be provided for the transfer of real-time S-band downlink
        telemetry.
     b. A 192/12 Kbps synchronous, serial bitstream data and clock service
        shall be provided for the transfer of recorded S-band downlink
        telemetry.
     c. A NISN Mission Critical Service is required.
     d. A HOSC and WSC Mission Critical Systems/SER security level or
        higher interface is required.
     e. The data transport delay shall not exceed 600 ms from WSC to HOSC.
     f. The maximum bit error rate shall be 10E-6.
     g. The communication service shall be transparent to the HOSC. (i.e.
        the data shall be presented by the communications equipment to the
        HOSC in the same format as that presented by the WSC to the
        communications equipment. Any overhead added by the communications
        service shall be removed from the data prior to delivery to the
        HOSC and shall require no additional processing or data handling
        capabilities on the part of the HOSC. The data provided by the WSC
        shall not be altered by the communications service).
     h. The communications service shall be capable of handling rate
        changes between 192 Kbps and 12 Kbps.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 02/26/03

[PRD] DATABASE RECORD: 554862   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/04/03
                                              INITIAL DATE: 04/26/00
ITEM NUMBER: H3G   DATE LAST CHANGED: 05/09/03
SECTION: 2200   TIME LAST CHANGED: 08:03:18

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2200 - TELEMETRY DATA

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
                              CONTINUED
[PRD] DATABASE RECORD: 554862
ITEM NUMBER: H3G

REQUESTER: MSFC
TEST CODE: ISSPAL

1. DESCRIPTION: SN LINE OUTAGE RECORDING

   The S-Band and Ku-Band return links shall be recorded at the White
   Sands Complex (WSC) for all ISS elements and held for a period of 50
   hours, or longer if specifically requested. Playback shall be required
   in the event of communications or facility failures.

   Playback of the Ku-Band data will utilize the same communications link
   as the real-time data, but real-time and playback data will not be
   transmitted simultaneously.

   S-Band data playback can occur simultaneously with real-time support,
   on a separate channel. Playback of ACS S-Band data will use a playback
   channel shared with ATV and HTV S-Band playbacks.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 03/10/03

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2700 - COMMUNICATION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
[PRD] DATABASE RECORD: 545773   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 04/26/00
                                           INITIAL DATE: 04/26/00
ITEM NUMBER: H2G   DATE LAST CHANGED: 06/18/04
SECTION: 2700   TIME LAST CHANGED: 09:55:56

REQUESTER: MSFC
TEST CODE: ISSPAL   POICALL

1. DESCRIPTION: SECURITY REQUIREMENTS

   NISN provided communications services shall comply with NASA Procedures
   and Guidelines (NPG) 2810.1, NASA's Information Technology (IT)
   Security Program (latest revision). The users of NISN services shall co
   mply with the Internet Protocol Operational Network (IOnet) Access Prote
   ction Policy and Requirements document, GSFC document number 290-004.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 02/02/01

[PRD] DATABASE RECORD: 545772   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 04/11/02

ITEM NUMBER: HT3G

[PRD] DATABASE RECORD: 555021   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 02/26/03
                                           INITIAL DATE: 04/26/00
ITEM NUMBER: H6G   DATE LAST CHANGED: 03/13/03
SECTION: 2700   TIME LAST CHANGED: 07:31:26

REQUESTER: MSFC
TEST CODE: ISSPALL   POICALL

1. DESCRIPTION: USER PERFORMANCE DATA MESSAGES

   User Performance Data (UPD) messages for all ISS elements shall
   simultaneously share the same communications interface as the Shuttle
   messages of the same type. Refer to the 451-ICD-NCCDS/MOC, Annex 10
   for detailed interface requirements.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 03/06/03

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2700 - COMMUNICATION

```
PUBLICATION DATE: 01/04/99   REVISION: 0000         RUN DATE: 01/12/09
========================================================================
                              ***CONTINUED***
[PRD] DATABASE RECORD:    555021
ITEM NUMBER:        H6G


------------------------------------------------------------------------
[PRD] DATABASE RECORD:    555153            REQUIREMENT STATUS: APPROVED
DOCUMENT ID:        ISS II                  APPROVAL DATE:      02/26/03
                                            INITIAL DATE:       04/26/00
ITEM NUMBER:        H7G                     DATE LAST CHANGED:  03/13/03
SECTION:            2700                    TIME LAST CHANGED:  07:32:15

REQUESTER:          MSFC
TEST CODE:          ISSPALL                 POICALL

1. DESCRIPTION:     HOSC TO DSMC INTERFACE

   Communications interfaces between the HOSC and the Data Service
   Management Center (DSMC) shall be provided. Refer to the
   530-ICD-NCCDS-MOC Annex 10 for detailed interface requirements.

SUPPLIER: GSFC      AGENCY: GSFC/451        (GODDARD SPACE FLIGHT CENTER      )

SUPPLIER COMMITMENT: WILCO                        RESPONSE DATE: 03/06/03
------------------------------------------------------------------------
```

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2730 - VOICE NETWORK TRANSMISSION

```
PUBLICATION DATE: 01/04/99   REVISION: 0000          RUN DATE: 01/12/09
==============================================================================
[PRD] DATABASE RECORD:    545782            REQUIREMENT STATUS: APPROVED
DOCUMENT ID:       ISS II                   APPROVAL DATE:      09/03/03
                                            INITIAL DATE:       04/26/00
ITEM NUMBER:       H1GHT                     DATE LAST CHANGED:  10/28/04
SECTION:           2730                      TIME LAST CHANGED:  10:56:52

REQUESTER:         MSFC
TEST CODE:         ISSPAL                POICALL


1. DESCRIPTION:    ISS VOICE COMMUNICATION REQUIREMENTS

   NISN shall provide voice communication services from the MSFC HOSC to
   NASA Centers and TSC locations.  The number of voice loops
   required are as follows:

      Loops     Destination
     --------   -----------
      144       JSC                 (NCHD)
        6       GSFC                (NCHD)
       24       ARC TSC             (NCHD)
       48       GRC TSC             (NCHD)

SUPPLIER: GSFC       AGENCY: GSFC/451      (GODDARD SPACE FLIGHT CENTER     )

SUPPLIER COMMITMENT: WILCO                          RESPONSE DATE: 07/21/04

SUPPLIER: MSFC       AGENCY: MSFC/FD43     (MARSHALL SPACE FLIGHT CENTER    )

SUPPLIER COMMITMENT: WILCO                          RESPONSE DATE: 09/03/03

SUPPLIER: JSC        AGENCY: JSC/DB        (T - JOHNSON SPACE CENTER        )

SUPPLIER COMMITMENT: WILCO                          RESPONSE DATE: 07/21/04
------------------------------------------------------------------------------
```

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
[PRD] DATABASE RECORD: 551424   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/13/03
                                           INITIAL DATE: 04/26/00
ITEM NUMBER: HT1G   DATE LAST CHANGED: 07/13/04
SECTION: 2734   TIME LAST CHANGED: 12:42:38

REQUESTER: MSFC   JSC
TEST CODE: ISSPAL   POICALL

1. DESCRIPTION: HOSC TO SSCC DATA TRANSFER INTERFACE

   NISN shall provide an Open IONET and a NASA operational WAN
   communication service between the HOSC and the SSCC. This WAN service,
   using the Transmission Control Protocol/Internet Protocol (TCP/IP)
   suite will transport the following data types: operational and
   simulated commands (payload and core), planning data files, uplink file
   transfer, and archived ISS systems data requests.

      a. A CIR of 112 kbps shall be provided for the transfer of
          operational and simulated commands via a dedicated point-to-
          point circuit or equivalent dedicated private network.
      b. A CIR of 300 Kbps shall be provided for the transfer of
          operational and simulated uplink files.
      c. A CIR of 192 Kbps shall be provided for the transfer of planning
          data files.
      d. A CIR of 1 Kbps shall be provided for the transfer of archive
          requests.
      e. A CIR of 256 Kbps shall be provided for the transfer of Orbiter
          Communication Adapter (OCA)data.
      f. A NISN Mission Critical Service (for a through d) is required.
      g. A NISN Premium Service for e. is required.
      h. A SSCC and HOSC Mission Critical Systems/MSN security level
          interface (for a through d) is required.
      i. The one-way data transport delay (for a through d) shall not
          exceed 120 ms.
      j. The one-way data transport delay for e. shall not exceed 100 ms.
      k. The maximum acceptable packet loss (for a through d) is .001
          percent.
      l. The maximum acceptable packet loss for e. is 1 percent.
      m. Refer to the SSCC to HOSC ICD (SSP 45001) for detailed interface
          requirements.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
===
                              CONTINUED
[PRD] DATABASE RECORD: 551424
ITEM NUMBER: HT1G

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 07/13/04

[PRD] DATABASE RECORD: 545779   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/13/03
                                            INITIAL DATE: 04/26/00
ITEM NUMBER: HT2G   DATE LAST CHANGED: 07/13/04
SECTION: 2734   TIME LAST CHANGED: 12:43:09

REQUESTER: MSFC   JSC
TEST CODE: ISSPAL   POICALL

1. DESCRIPTION: SSCC TO HOSC DATA TRANSFER INTERFACE

   NISN shall provide an Open IONET and a NASA Operational Wide WAN
   comunications service between the SSCC and the HOSC. This WAN service
   utilizing the TCP/IP suite will transport the following data types:
   command responses, command history data files, planning data files,
   uplink file transfers, and archived ISS Systems data files.

   a. A CIR of 112 kbps shall be provided for the transfer of
      operational and simulated command responses via a dedicated
      point-to-point circuit or equivalent dedicated private network.
   b. A CIR of 112 Kbps shall be provided for the transfer of
      operational and simulated command history files.
   c. A CIR of 192 Kbps shall be provided for the transfer of planning
      data files.
   d. A CIR of 150 Kbps shall be provided for the transfer of archived
      ISS Systems data files.
   e. A 192 Kbps, synchronous, serial bitstream data and clock service
      shall be provided for the transfer of simulated S-band downlink
      telemetry.
   f. A CIR of 4 Kbps shall be provided for the transfer of real-time
      and simulated IAM Antenna Management data.
   g. A CIR of 256 Kbps shall be provided for the transfer of Orbiter
      Communications Adapter (OCA) data.
   h. A NISN Mission Critical Service (for a through f) is required.
   i. A NISN Premium Service for g. is required.
   j. SSCC and HOSC Mission Critical System/MSN security level interface
      is required.

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
===
                              CONTINUED

[PRD] DATABASE RECORD: 545779
ITEM NUMBER: HT2G

    k. The one-way data transport delay (a through f) shall not
       exceed 120 ms.
    l. The one-way data transport delay for g. shall not exceed 100 ms.
    m. The maximum acceptable packet loss (for a through f) is .001
       percent.
    n. The maximum acceptable packet loss for g. is 1 percent.
    o. Refer to SSCC to HOSC ICD (SSP 45001) for detailed interface
       requirements.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 07/13/04

[PRD] DATABASE RECORD: 545780   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/13/03
                                               INITIAL DATE: 04/26/00
ITEM NUMBER: HT3G   DATE LAST CHANGED: 03/19/03
SECTION: 2734   TIME LAST CHANGED: 10:24:13

REQUESTER: MSFC   JSC
TEST CODE: ISSPAL   POICALL

1. DESCRIPTION: SSTF TO HOSC DATA TRANSFER INTERFACE

    NISN shall provide a NASA Operational Wide Area Network (WAN)
    communications service for communications between the SSTF and the HOSC.

    The WAN service, utilizing TCP/IP protocol suite, will transport the
    following data types: simulated payload health and status data and
    Instructor Station (IS) training session data stream.

    a. A CIR of 256 Kbps shall be provided for the transfer of simulated
       Payload Health and Status data.
    b. A CIR of 1.1 Mbps shall be provided for the transfer of IS
       Training Session Data.
    c. A CIR of 100 Kbps shall be provided for the transfer of simulated
       S-band telemetry data.
    d. A NISN Mission Critical service is required.
    e. A SSTF and HOSC Mission Critical Systems/SER security level
       interface is required.

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
===
                                  CONTINUED
[PRD] DATABASE RECORD: 545780
ITEM NUMBER: HT3G

      f. The one-way data transport delay shall not exceed 100 ms.
      g. The maximum acceptable packet loss is .001 percent.
      h. Refer to the SSTF to MSFC POIC and RAPS ICD (SSP 50088) for
         detailed interface requirements.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 03/19/03

[PRD] DATABASE RECORD: 555027   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/13/03
                                              INITIAL DATE: 04/26/00
ITEM NUMBER: HT4G   DATE LAST CHANGED: 05/09/03
SECTION: 2734   TIME LAST CHANGED: 08:27:21

REQUESTER: MSFC   JSC
TEST CODE: ISSPAL   POICALL

1. DESCRIPTION: HOSC TO SSTF DATA TRANSFER INTERFACE

   NISN shall provide a NASA Operational WAN communications service for
   communications between the SSTF and the HOSC. This WAN service,
   utilizing TCP/IP protocol suite, will transport the following data
   types: Simulated Payload Health and Status and Instructor Station (IS)
   Training Session data.

      a. A CIR of 1.4 Mbps shall be provided for the transfer of Remote
         Area for Payload Support (RAPS) data and Instructor Operator
         Station (IOS) Instructor Station (IS) Training Session Data.
      b. A CIR of 100 Kbps shall be provided for the transfer of S-band
         command data.
      c. A NISN Mission Critical Service is required.
      d. A SSTF and HOSC Mission Critical Systems/SER security level
         interface is required
      e. The one-way data transport delay shall not exceed 100 ms.
      f. The maximum acceptable packet loss is .001 percent.
      g. Refer to SSTF to MSFC POIC and RAPS ICD (SSP 50088) for detailed
         interface requirements.

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
===
CONTINUED
[PRD] DATABASE RECORD: 555027
ITEM NUMBER: HT4G

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 03/19/03

[PRD] DATABASE RECORD: 555017   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 06/10/02

ITEM NUMBER: H5G

[PRD] DATABASE RECORD: 555730   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 06/10/02

ITEM NUMBER: H6G

[PRD] DATABASE RECORD: 545790   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/13/03
                                              INITIAL DATE: 04/26/00
ITEM NUMBER: H7G   DATE LAST CHANGED: 07/20/04
SECTION: 2734   TIME LAST CHANGED: 13:21:20

REQUESTER: MSFC
SUBREQUESTER: JSCT
TEST CODE: JSCTALL

1. DESCRIPTION: HOSC TO JSC TSC DATA TRANSFER INTERFACE

   NISN shall provide a NASA Operational WAN communications service for
   communications between the HOSC and the JSC TSC. This WAN service,
   utilizing TCP/IP protocol suite, will transport the following data
   types: Real-Time data, COR Dump of Real-Time data, LOR PB of Real-Time
   Data, COR Dump of real-time data, LOR PB of COR Dump, PIMS Data,
   PPS Data, GSE Packet definition and distribution, OCMS Data, Telemetry
   Services, and Commanding Services.

   The X-Windows interface requires a CIR of 56 Kbps for each active
   session (screen which is continually updating). The X-Windows interface
   require a CIR of 56 Kbps for the combined non-active sessions.

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
                                   CONTINUED
[PRD] DATABASE RECORD: 545790
ITEM NUMBER: H7G

    a. A CIR of 7.544 Mbps shall be provided for the transfer of
        real-time payload experiment data, stored payload experiment
        data, payload health and status data, flight ancillary data,
        downlink file transfers, GSE subsets, and custom data packets.
    b. A NISN Premium service is required.
    c. A HOSC and JSC Mission Critical Systems/SER security level
        interface is required.
    d. The one-way data transport delay shall not exceed 100 ms.
    e. The maximum acceptable packet loss is <1%.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 03/19/03

[PRD] DATABASE RECORD: 555061   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/13/03
                                            INITIAL DATE: 04/26/00
ITEM NUMBER: H8G   DATE LAST CHANGED: 03/19/03
SECTION: 2734   TIME LAST CHANGED: 10:26:04

REQUESTER: MSFC
TEST CODE: JSCTALL

1. DESCRIPTION: JSC TSC TO HOSC DATA TRANSFER INTERFACE

   NISN shall provide a NASA Operational WAN communications service for
   communications between the HOSC and the JSC TSC. This WAN service,
   utilizing TCP/IP protocol suite, will transport the following data
   types: Real-Time data, COR Dump of Real-Time data, LOR PB of Real-Time
   Data, COR Dump of real-time data, LOR PB of COR Dump, PIMS Data,
   PPS Data, GSE Packet definition and distribution, OCMS Data, Telemetry
   Services, and Commanding Services.

   The X-Windows interface requires a CIR of 56 Kbps for each active
   session (screen which is continually updating). The X-Windows
   interface requires a CIR of 56 Kbps for the combined non-active sessions
   .

    a. A CIR of 1.544 Mbps shall be provided for the transfer of

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
                                        CONTINUED
[PRD] DATABASE RECORD: 555061
ITEM NUMBER: H8G

        X-Window commands, PIMS data, PPS data, and uplink file
        transfers.
   b.   A NISN Premium service is required.
   c.   A HOSC and JSC TSC Mission Critical Systems/SER security level
        interface is required.
   d.   The one-way data transport delay shall not exceed 100 ms.
   e.   The maximum acceptable packet loss is <1%.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 03/19/03

[PRD] DATABASE RECORD: 554957   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/13/03
                                             INITIAL DATE: 04/26/00
ITEM NUMBER: H9G   DATE LAST CHANGED: 03/19/03
SECTION: 2734   TIME LAST CHANGED: 10:26:30

REQUESTER: MSFC
TEST CODE: GRCTALL

1. DESCRIPTION: HOSC TO GRC TSC DATA TRANSFER INTERFACE

   NISN shall provide a NASA Operational Wide Area Network (WAN)
   communications service for communications between the HOSC and the GRC
   TSC. This WAN service, utilizing TCP/IP protocol suite, will transport
   the following data types: Real-Time data, COR Dump of Real-Time data,
   LOR PB of Real-Time Data, LOR PB of COR Dump, PIMS Data, PPS Data, GSE
   Packet definition and distribution, OCMS Data, Telemetry Services, and
   Commanding Services.

   a. A CIR of 7.278 Mbps shall be provided for the transfer of real-
      time payload experiment data, stored payload experiment data,
      payload health and status data, flight ancillary data, ground
      ancillary data, GSE subsets, and custom data packets.
   b. A NISN Premium service is required.
   c. A HOSC and GRC TSC Mission Critical Systems/SER security level
      interface is required.
   d. The one-way data transport delay shall not exceed 100 ms.
   e. The maximum acceptable packet loss is <1%.

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
===
                                  CONTINUED
[PRD] DATABASE RECORD: 554957
ITEM NUMBER: H9G

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 03/19/03

[PRD] DATABASE RECORD: 555047   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/13/03
                                           INITIAL DATE: 04/26/00
ITEM NUMBER: H10G   DATE LAST CHANGED: 03/19/03
SECTION: 2734   TIME LAST CHANGED: 10:27:00

REQUESTER: MSFC
TEST CODE: GRCTALL

1. DESCRIPTION: GRC TSC TO HOSC DATA TRANSFER INTERFACE

   NISN shall provide a NASA Operational Wide Area Network (WAN)
   communications service for communications between the HOSC and the GRC
   TSC. This WAN service, utilizing TCP/IP protocol suite, will transport
   the following data types: Real-Time data, COR Dump of Real-Time data,
   LOR PB of Real-Time Data, LOR PB of COR Dump, PIMS Data, PPS Data, GSE
   Packet definition and distribution, OCMS Data, Telemetry Services, and
   Commanding Services.

   a. A CIR of 1.544 Mbps shall be provided for the transfer of
       X-Window commands, PIMS data, PPS data, and uplink file transfer.
   b. A NISN Premium service is required.
   c. A HOSC and GRC TSC Mission Critical Systems/SER security level
       interface is required.
   d. The one-way data transport delay shall not exceed 100 ms.
   e. The maximum acceptable packet loss is <1 percent.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 03/19/03

[PRD] DATABASE RECORD: 554960   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 02/18/03
                                           INITIAL DATE: 04/26/00
ITEM NUMBER: H11G   DATE LAST CHANGED: 03/13/03

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
                                CONTINUED
[PRD] DATABASE RECORD: 554960
ITEM NUMBER: H11G

SECTION: 2734   TIME LAST CHANGED: 07:41:49

REQUESTER: MSFC
TEST CODE: RSAALL

1. DESCRIPTION: HOSC AND MCC-M MISSION DATA TRANSFER INTERFACE

    NISN will provide a full duplex NASA operational PIP Wide Area Network
    (WAN)communications service for communications from the HOSC to the
    Russian Space Agency (RSA). This PIP WAN service using the Transmission
    Control Protocol/Internet Protocol (TCP/IP) suite of protocols will
    provide the exchange of Mission Planning Data Files and will also be
    used for the Payload Information Management System (PIMS) interface.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 02/26/03
RESPONSE:

[PRD] DATABASE RECORD: 556388   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 02/18/03

ITEM NUMBER: H12G

[PRD] DATABASE RECORD: 554947   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/13/03
                                            INITIAL DATE: 04/26/00
ITEM NUMBER: H13G   DATE LAST CHANGED: 05/09/03
SECTION: 2734   TIME LAST CHANGED: 08:30:06

REQUESTER: MSFC
TEST CODE: RPIALL

1. DESCRIPTION: HOSC TO RPI DATA TRANSFER INTERFACE

    DATA: NISN shall provide a 10 MBPS Standard IP routed data interface
    between the HOSC and each designated RPI Peering Point for the purpose
    of transporting telemetry data and providing an Internet interface to
    POIC Web services, PPS, VoIP, and programmatic interfaces.

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
===
                              CONTINUED
[PRD] DATABASE RECORD: 554947
ITEM NUMBER: H13G

```
    a. Mean Time to Restore (MTTR) between the NISN-provided HOSC
       Demarcation and a Peering Point shall not exceed 24 hours.
    b. The one-way transport delay between the NISN-provided HOSC
       Demarcation and a Peering Point shall not exceed 250 ms.
    c. The maximum acceptable packet loss between the NISN-provided HOSC
       Demarcation and a Peering Point is 1%.
    d. The coverage period for a Standard IP routed data service as
       identified in the NISN Services Document is acceptable.
    e. NISN responsibility for performance is terminated at the Peering
       Point(s).
    f. NISN will provide assistance in isolating outages between the
       Peering Point and the RPI Site, if requested.

    NOTE:  It is the responsibility of each RPI to make the arrangements
       for the transfer of data from the Peering Point to their RPI
       location.  Performance standards, restoration times, and other
       Service Level Agreement (SLA) type items shall be made solely
       between the RPI and their Internet Service Provider (ISP).
       There shall be no NISN involvement in this process.
```

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 03/19/03
RESPONSE:

[PRD] DATABASE RECORD: 554932   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 04/24/03

ITEM NUMBER: H15G

[PRD] DATABASE RECORD: 581857   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 04/18/05
                                            INITIAL DATE: 04/18/05
ITEM NUMBER: H15G   DATE LAST CHANGED: 04/26/05
SECTION: 2734   TIME LAST CHANGED: 14:44:36

REQUESTER: MSFC
TEST CODE: RPIALL

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
                            CONTINUED
[PRD] DATABASE RECORD: 581857
ITEM NUMBER: H15G

1. DESCRIPTION: JSC ISIL TO MSFC HOSC DATA TRANSFER INTERFACE

   NISN shall provide a NASA Operational WAN communications service for
   data transfer from the JSC ISS Systems Integration Lab (ISIL) to the
   MSFC HOSC. This WAN service will provide for the transport of VCDU
   packet formatted data from the HFRM system and for Ethernet UDP Packet
   formatted data from the Payload MDM System.

   A. A CIR of 50 Mbps shall be provided
   B. A Mission Critical Systems/SER security level interface is required.
   C. This WAN service shall have an availability of not less than 99.5%.
   D. The restoral time shall not exceed 24 hours.
   E. The maximum packet loss shall not exceed 1%.
   F. The one way data transport delay shall not exceed 250 ms.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )
RESPONDER: TONY WILLIAMS

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 04/26/05

[PRD] DATABASE RECORD: 554926   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 06/10/02

ITEM NUMBER: H16G

[PRD] DATABASE RECORD: 554929   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/03/03

ITEM NUMBER: H17G

[PRD] DATABASE RECORD: 554930   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/03/03

ITEM NUMBER: H18G

[PRD] DATABASE RECORD: 554938   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/03/03

ITEM NUMBER: H19G

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
                                   CONTINUED
[PRD] DATABASE RECORD: 554938
ITEM NUMBER: H19G

[PRD] DATABASE RECORD: 554966   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 02/18/03

ITEM NUMBER: H20G

[PRD] DATABASE RECORD: 554965   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/03/03

ITEM NUMBER: H21G

[PRD] DATABASE RECORD: 554963   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 04/26/00

ITEM NUMBER: H22G

[PRD] DATABASE RECORD: 554964   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 04/26/00

ITEM NUMBER: H23G

[PRD] DATABASE RECORD: 554962   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 03/03/03

ITEM NUMBER: H24G

[PRD] DATABASE RECORD: 556393   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 06/10/02

ITEM NUMBER: H25G

[PRD] DATABASE RECORD: 556391   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 06/10/02

ITEM NUMBER: H26G

==

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2734 - VIDEO/DATA NETWORK TRANSMISSION

```
PUBLICATION DATE: 01/04/99   REVISION: 0000          RUN DATE: 01/12/09
=======================================================================
[PRD] DATABASE RECORD:    556392          REQUIREMENT STATUS: DELETED
DOCUMENT ID:      ISS II                  APPROVAL DATE:      03/03/03

ITEM NUMBER:      H27G
-----------------------------------------------------------------------
[PRD] DATABASE RECORD:    560950          REQUIREMENT STATUS: DELETED
DOCUMENT ID:      ISS II                  APPROVAL DATE:      04/24/03

ITEM NUMBER:      H29G
-----------------------------------------------------------------------
[PRD] DATABASE RECORD:    561440          REQUIREMENT STATUS: DELETED
DOCUMENT ID:      ISS II                  APPROVAL DATE:      11/20/01

ITEM NUMBER:      H30G
-----------------------------------------------------------------------
```

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2750 - VOICE TERMINATIONS

```
PUBLICATION DATE: 01/04/99   REVISION: 0000          RUN DATE: 01/12/09
========================================================================
[PRD] DATABASE RECORD:    554952            REQUIREMENT STATUS: APPROVED
DOCUMENT ID:      ISS II                    APPROVAL DATE:      12/21/06
                                            INITIAL DATE:       04/26/00
ITEM NUMBER:      HT1GHT                     DATE LAST CHANGED:  01/07/08
SECTION:          2750                       TIME LAST CHANGED:  14:44:23


REQUESTER:        MSFC                JSC
TEST CODE:        FULL-TIME           ISSPAL              POICALL


1. DESCRIPTION:   VOICE COMMUNICATION DETAILS TO JSC & GSFC

   I.  JSC-to-MSFC
   REAL-TIME SUPPORT                 COMMENTS & RESTRICTIONS
   1 S/G 1                 T/M       RPI Talk access controlled by PAYCOM
   1 S/G 2                 T/M       RPI Talk access controlled by PAYCOM
   ASMBLY COORD 1          T/M
   CATO 1                  T/M
   CBOSS CONF              T/M       JSC TSC CBOSS IVoDS Users (Note 3)
   ECLS COORD              T/M       ECLS
   EPO COORD 1             T/M
   ETOV COORD              T/M
   FCR SYS 1               T/M
   FD/POD COORD 1          T/M       JSC ISS FD & MSFC POD ONLY
   FMT COORD 1             T/M
   HLS CONF 1              T/M       JSC TSC Only (Note 3)
   HLS PLAN 1              T/M       JSC TSC Only (Note 3)
   HOSC O/W                T/M       IST Use Only
   HOUSTON SUPT            T/M
   IEPC                    T/M
   IMC COORD 1             T/M       NODE 2
   IP CONF 1               T/M
   IP/GC 1                 T/M
   IP STOWAGE 1            T/M
   ISS AFD 1               T/M       Talk for POD & OC Only
   ISS CAPCOM 1            T/M       MSFC PAYCOM, POD, & OC ONLY
   ISS COMMAND 1           T/M
   ISS FD 1                T/M       Talk for POD Only
   ISS IST                 T/M       IST Use Only
   ISS MCC COORD 1         T/M       IST Use Only
   ISS MED OPS 1           T/M
   ISS MER 1               T/M
   ISS MER MGR 1           T/M       ECLS
   ISS MER PROB 1          T/M
   ISS OPS                 T/M
```

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2750 - VOICE TERMINATIONS

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
                                        CONTINUED
[PRD] DATABASE RECORD: 554952
ITEM NUMBER: HT1GHT

```
  ISS PRIME OPS 1         T/M
  ISS SYS COORD 1         T/M       NODE 2
  ISS SYS COORD 4         T/M
  OCA BLUE FCR             M
  OCA ISS 1               T/M
  ODIN 1                  T/M
  OPS PLAN 1              T/M
  OSO 1                   T/M       ECLS
  OSO COORD 1             T/M
  OSO MPSR 1               M        ECLS
  PHALCON 1                M        NODE 2
  PHALCON COORD 1         T/M
  PLAN/STOW COORD         T/M
  RS ISS VHF 1             M        Note 6
  RS ISS VHF 2             M
  S/T PLAN COORD 1        T/M
  TCOM 1                  T/M       MSFC PAYCOM, POD, & OC ONLY
  TCS COORD 1             T/M
  THOR 1                   M        NODE 2
  THOR CALL 1             T/M
  TRANSL RUS TO ENG        M
  UCSD-MCG                T/M
  XCOM 1                  T/M       Talk for POIC PAYCOM Only


  II.  JSC-to-MSFC
  SIMULATION & TEST SUPPORT          COMMENTS & RESTRICTIONS
  2 S/G 1                 T/M       RPI Talk access controlled by PAYCOM
  2 S/G 2                 T/M       RPI Talk access controlled by PAYCOM
  AFD CONF (SIM)          T/M       Configured only for Joint STS/ISS Sim
                                    debriefs between JSC and MSFC
  ASMBLY COORD 2          T/M
  CATO 2                  T/M
  EPO COORD 2             T/M
  FCR SYS 2               T/M
  FD/POD COORD 2          T/M       Restricted to MSFC POD console
  FMT COORD 2             T/M
  IP CONF 2               T/M
  IP/GC 2                 T/M
  IP/GC TEST              T/M
```

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2750 - VOICE TERMINATIONS

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
===
                                           CONTINUED
[PRD] DATABASE RECORD: 554952
ITEM NUMBER: HT1GHT

```
  IP STOWAGE 2          T/M
  ISS AFD 2             T/M        Talk for POD, OC & Sim Sup Only
  ISS CAPCOM 2          T/M        MSFC PAYCOM, POD, & OC ONLY
  ISS COMMAND 2         T/M
  ISS FD 2              T/M
  ISS MCC COORD 2       T/M        IST Use Only
  ISS MED OPS 2         T/M
  ISS MER 2             T/M
  ISS MER MGR 2         T/M        ECLS
  ISS MER PROB 2        T/M        ECLS
  ISS PRIME OPS 2       T/M
  ISS SIM DATA          T/M        POIC Sim Team Only
  ISS TN COORD 2         M
  ISS TRNING COORD      T/M        POIC Sim Team Only
  OCA ISS 2             T/M
  OCA RED FCR            M
  ODIN 2                T/M
  OPS PLAN 2            T/M
  ORT COORD             T/M
  OSO COORD 2           T/M
  PHALCON COORD 2       T/M
  SIM ISS SYS COORD 1   T/M        NODE 2
  SIM ISS SYS COORD 4   T/M
  SIM HOUSTON SUPT      T/M
  SIM ISS OPS           T/M
  SIM P/L 1             T/M        POIC Sim Team Only
  SIM P/L 2             T/M        POIC Sim Team Only
  SIM RS ISS VHF 1       M
  SIM RS ISS VHF 2       M
  STL 2                 T/M        POIC Sim Team Only
  S/T PLAN COORD 2      T/M
  SVF COORD 1           T/M        IST Use Only
  SVT COORD 1           T/M        SVT TESTING WITH COL-CC
  SVT COORD 2           T/M        SVT TESTING WITH COL-CC
  SVT COORD 3           T/M        SVT TESTING WITH COL-CC
  TCOM 2                T/M        MSFC PAYCOM, POD, & OC ONLY
  TCS COORD 2           T/M
  THOR CALL 2           T/M
  TSC SIM FD            T/M        Connects to ISS FD 2 at MSFC,
```

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2750 - VOICE TERMINATIONS

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
===
                                        CONTINUED
[PRD] DATABASE RECORD: 554952
ITEM NUMBER: HT1GHT

```
                                On an As-Required basis.
  TSC SIM S/G-1          T/M    Connects to 2 S/G 2 at MSFC,
                                On an As-Required basis.
  XCOM 2                 T/M


  III.  MSFC-to-JSC
  REAL-TIME SUPPORT              SUPPORT COMMENTS & RESTRICTIONS
  1 SCI 1                T/M     JSC TSC or CSA Only
  1 SCI 2                T/M     JSC TSC or CSA Only
  1 SCI 3                T/M     JSC TSC or CSA Only
  1 SCI 4                T/M     JSC TSC or CSA Only (Note 3)
  1 SCI 5                T/M     JSC TSC or CSA Only
  DMC 1                  T/M     JSC TSC Only
  Ku COORD 1             T/M     JSC SSCC (T/M) & JSC TSC (M)
  LIS COORD 1            T/M     SSCC and JSC TSC
  OC 1                   T/M     JSC TSC Only
  PLAN COORD 1           T/M     SSCC Only
  POD 1                  T/M     SSCC and JSC TSC
  POIC STOWAGE 1         T/M     JSC TSC Only
  PRO 1                  T/M     JSC TSC Only
  PSE 1                  T/M     JSC TSC Only
  RGEN COORD             T/M     ECLS
  RPI OPS 1              T/M     JSC TSC or CSA Only
  SOC 1                  T/M     JSC TSC Only


  IV.  MSFC-to-JSC
  SIMULATION & TEST SUPPORT       COMMENTS & RESTRICTIONS
  2 SCI 1                T/M     JSC TSC or CSA Only
  2 SCI 2                T/M     JSC TSC or CSA Only
  2 SCI 3                T/M     JSC TSC or CSA Only
  2 SCI 4                T/M     JSC TSC or CSA Only (Note 3)
  2 SCI 5                T/M     JSC TSC or CSA Only
  DMC 2                  T/M     JSC TSC Only
  JSC SIM                T/M     JSC TSC & POIC Sim Teams Only
  Ku COORD 2             T/M     JSC SSCC (T/M) & JSC TSC (M)
  LIS COORD 2            T/M     SSCC and JSC TSC
  OC 2                   T/M     JSC TSC Only
  PAYCOM 2               T/M     LIS REP at JSC TSC Only
```

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2750 - VOICE TERMINATIONS

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
===
                                      CONTINUED
[PRD] DATABASE RECORD: 554952
ITEM NUMBER: HT1GHT

```
   PLAN COORD 2           T/M        SSCC Only
   POD 2                  T/M        SSCC and JSC TSC
   POIC STOWAGE 2         T/M        JSC TSC Only
   PRO 2                  T/M        JSC TSC Only
   RPI OPS 2              T/M        JSC TSC or CSA Only
   SOC 2                  T/M        JSC TSC Only
   TSC SIM                T/M        POIC & JSC TSC Sim Teams Only


   V.   JSC-to-MSFC  (STS Support to ISS Payloads) (Notes 4 & 5)
   A/G 1                  M
   A/G 2                  M
   AFD CONF               T/M        Talk for POD, SOC, & OC Only
   FD                     T/M        Talk for POD & OC Only
   MCC COORD              T/M        IST Use Only
   POCC CMD               T/M
   PRIME OPS              T/M



   VI. JSC-to-MSFC (PAO LOOPS)
   COMMENTATOR OPS        T/M        PAO Use Only
   ISS SUPPORT AUDIO      T/M        PAO Use Only
   SUPPORT AUDIO           M         PAO Use Only
   PAO COORD              T/M        PAO Use Only
   PAO CUE                T/M        PAO Use Only
   VIDEO OPS              T/M        PAO Use Only


   VII. GSFC-to-MSFC
   REAL-TIME SUPPORT                 COMMENTS & RESTRICTIONS
   GM COORD               T/M        IST Only
   NISN COMM COORD        T/M        IST Only
   ISS SITE COORD         T/M        IST Only during US VHF supports.
   ISS TN COORD 1         T/M
   TV CONFERENCE          T/M
   WSC PLAYBACK COORD     T/M        IST Only

   DBR NOTES:
      1.  JSC is responsible to provide responses to Section I - VI only.
      2.  GSFC is responsible to provide responses to Section VII only.
      3.  This loop has been requested by the JSC TSC
```

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2750 - VOICE TERMINATIONS

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
===
CONTINUED
[PRD] DATABASE RECORD: 554952
ITEM NUMBER: HT1GHT

     4. Required only when Shuttle is supporting ISS Payloads
     5. Default configuration is Real-Time.
     6. The default configuration for RS ISS VHF 1 is Monitor only.
         Only at the direction of the ISS FD will it be changed to Talk/
         Monitor. This should be only during VHF proficiency passes or
         for VHF voice contingency supports.

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )
RESPONDER: TONY WILLIAMS

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 04/30/07

SUPPLIER: MSFC   AGENCY: MSFC/EO60   (MARSHALL SPACE FLIGHT CENTER   )
RESPONDER: MIKE BLUM

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 01/07/08

SUPPLIER: JSC   AGENCY: JSC/DB   (T - JOHNSON SPACE CENTER   )
RESPONDER: KEN JONES

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 01/07/08

[PRD] DATABASE RECORD: 557683   REQUIREMENT STATUS: DELETED
DOCUMENT ID: ISS II   APPROVAL DATE: 06/07/01

ITEM NUMBER: HT2GHT

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2800 - VIDEO

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
[PRD] DATABASE RECORD: 545778   REQUIREMENT STATUS: APPROVED
DOCUMENT ID: ISS II   APPROVAL DATE: 07/19/07
                                          INITIAL DATE: 04/26/00
ITEM NUMBER: H1GT   DATE LAST CHANGED: 07/23/07
SECTION: 2800   TIME LAST CHANGED: 13:09:09

REQUESTER: MSFC
TEST CODE: ISSPALL   POICALL

1. DESCRIPTION: TELEVISION DISTRIBUTION REQUIREMENTS

   NISN is to provide two (2) video channels to the HOSC, GRC TSC, ARC
   TSC, and to the RPI Peering Point. NISN is to encode NTSC video
   sourced from JSC Bldg 8, up to 6 Mbps per channel.

   JSC ISD is responsible for delivery of NTSC video from JSC Bldg 8
   to the JSC NISN PIP demarcation point. Service restoration for ISD
   resources is <8 hours on weekdays, and on-call on weekends.

   A NISN PIP service is required to the HOSC/MSFC TSC, the GRC TSC,
   and the ARC TSC. NISN will provide decoding equipment at the MSFC
   Bldg. 4207 and at the GRC TSC and ARC TSC to deliver NTSC video
   outputs.

   A NISN SIP service is required to the RPI Peering Point.

   The RPI sites require the video to be delivered in IP format for
   viewing on a PC. RPI's are responsible for the transfer of encoded
   video from the Peering Point to their RPI locations and are responsible
   for the decoding and display of the received video data delivered in IP
   format.

   The following table identifies current and future video service
   requirements, and will be updated as locations are changed.

Description	Number of Channels
MSFC HOSC	2
MSFC TSC	2
GRC TSC	2
ARC TSC	2
Portland State University	1
Univ. of Colorado/Boulder	1
Univ. of Cal./San Diego	1

CLASSIFICATION UNCLASSIFIED

INTERNATIONAL SPACE STATION ORBITAL VOL-II
PROGRAM REQUIREMENTS DOCUMENT/PROGRAM SUPPORT PLAN/
OPERATIONS REQUIREMENT/OPERATIONS DIRECTIVE (PRD/PSP/OR/OD)
PROGRAM NUMBER: 30000

SECTION 2800 - VIDEO

PUBLICATION DATE: 01/04/99   REVISION: 0000   RUN DATE: 01/12/09
==
                              CONTINUED
[PRD] DATABASE RECORD: 545778
ITEM NUMBER: H1GT

     Mass Inst of Technology   1

   REF: ISS VOL-I SECTION 2800 ITEM TG2GHT DBR 553803

SUPPLIER: GSFC   AGENCY: GSFC/451   (GODDARD SPACE FLIGHT CENTER   )
RESPONDER: TONY WILLIAMS

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 07/23/07

SUPPLIER: JSC   AGENCY: JSC/DV   (JOHNSON SPACE CENTER   )
RESPONDER: KEN JONES

SUPPLIER COMMITMENT: WILCO   RESPONSE DATE: 07/19/07

```
                       THIS REPORT CONTAINS    29 PAGES
--------------------------------------------------------------------------

REPORT BY: FORM=06  DOC=ISS II SPL= G   ,S   ,Y     P1030=N
```